REMARKS

Claims 1, 12 and 14-16, all the claims pending in the application, stand rejected. No claims are amended. Claim 16 has been cancelled.

Double Patenting

The Examiner has rejected claims 1, 12 and 14-16 for double patenting under the judicially created doctrine of obvious-type double patenting as being unpatentable over claims 1, 11 and 12 of US Patent No. 6,741,900. This rejection is traversed as the cited claims include limitations not found in the presently pending claims, such that an infringement of the presently pending claims would not necessarily be an infringement of the issued claims.

Nonetheless, Applicants will consider filing a Terminal Disclaimer upon an indication that the presently pending claims are patentable.

Claim Objection

Claim 16 is objectionable because it depends from a cancelled claim. Applicant has cancelled claim 16.

Claim Rejections - 35 U.S.C. § 102

Claims 1, 12 and 14-16 are rejected under 35 U.S.C. § 102(b) as being anticipated by Suzuki et al (6,108,586). This rejection is traversed for at least the following reasons.

Support for the presently claimed invention may be found in connection with the first embodiment of the invention as disclosed at pages 14-24. In particular, the disclosure with regard to the structure illustrated in Fig. 1 and the process illustrated in Fig. 7, as described at pages 22-24 is relevant.

A significant feature of the invention is the assembly of tables, as illustrated in Figs. 4 and 5, which correlate particular parameters for a strength category (Fig. 4) or stress category (Fig. 5) with a formula for calculation of strength and stress quantities for a product to be designed. A third table (Fig. 6) is provided as a basis for comparing the strength and stress quantities, using a predetermined formula given in the table, and outputting a particular report.

With reference to Figs. 4 and 5, for a given strength or stress category (402, 502), one or more parameters are listed by name (403, 503) and correlated to a formula (404, 504) for calculating a strength quantity. In this manner, a variety of characteristics for any given part or product may be considered in determining its strength and the stress that may be imposed on the product to be designed. According to the invention, the strength value of the product and stress value to be imposed on the product are automatically estimated and compared with each other at the time of design. Thus, it is possible to obtain a report of information regarding a potential problem that may arise, as explained at page 2 of the application.

Claim 1 is directed to a design support apparatus which includes an input reception unit 206 that prompts a designer or CAD/CAM system to input certain **parameter values** based upon certain **parameter names** that are related to strength and stress categories. Based upon the particular category that has been selected, and the input of the values for parameters related to that category (403, 503) a calculation is made of the strength and stress quantities using a stored formula (404, 504). This calculation is performed by a separate strength calculation unit 212 that calculates the strength value using the input parameter values of control attributes in accordance with the extracted formula, as explained at page 23. Similarly, the stress calculation unit 213 calculates the stress value using input parameter values of stress attributes. Finally, a comparison report unit 214 compares the two values in accordance with a particular procedure that also is stored in a table as illustrated in Fig. 6, and a report will be issued, as explained at page 23.

The method for performing this operation, as illustrated in Fig. 7 and explained also at pages 22-23, is defined by independent claim 12.

Suzuki et al

The patent to Suzuki et al has a goal of estimating the possibility of physical effects in a particular part. The Examiner points to the description at col. 15, line 23-col. 16, line 15 as describing an **input arrangement** (keyboard 11, mouse 12, tablet 13) and **display** (21), as illustrated in Fig. 1, that permits an operator to input information via a menu illustrated in Figs. 12 and 13. Notably, it appears that the input is with respect to a particular part that already has

predetermined parameters. Thus, contrary to the Examiner's conclusion, there is no basis for the input of a (1) parameter name for a product and (2) parameter values associated with the parameter name. Only the input of a product name or identification is contemplated.

The Examiner points to the disclosure at col. 19, lines 51-60 as a basis for demonstrating that names of attachment-destined parts, standard attaching operations elements and part condition related supplementary elements may be entered for each operation as illustrated in Fig. 15. Applicants respectfully submit that such information, however, is not the parameter name and parameter values as recited in the claim. Even if the Examiner considers certain ID numbers or part locations of products to be such parameters (see Figs 12 and 13), Applicants note that the same the parameter names and parameter values that are required for the claimed "input reception unit" are also required for the other claimed units. Applicants submit that the ID numbers or part locations would not apply to these other units. In short, for all of the foregoing reasons, the claimed inputs are not found in Suzuki et al.

The Examiner points to the disclosure at col. 21, lines 10-39, for a description of a strength calculation unit and stress calculation unit. At this location, Suzuki teaches that the "injuries/soil of part", i.e., damage or contamination, may occur to a part, but the part may not be considered defective with regard to a particular operation. Thus, parts that undergo the same external force or stress may not be regarded as defective since a consideration must be given of their functions of roles. Thus, the Examiner asserts that Suzuki teaches that coefficient values indicating strength of individual parts may be stored in a database for each type of part. The Examiner further asserts that the estimated defect parameter can be arithmetically determined by taking into account the probability of such defect by comparing the strength of a part with the magnitude of applied external force or stress picking on the part. The Examiner concludes that, given this calculation, an estimation of the likelihood of a defect or failure can be obtained and reported.

Notably, however, this process in Suzuki appears to rely upon predetermined parameter values. Thus, once a part is identified, the related values are retrieved from storage as correlated data. Applicants respectfully submit that there is no consideration of a calculation of strength

nor a calculation of stress, particularly with the use of (1) prestored formulas and (2) input parameter values related to the strength and stress categories.

The present invention provides a greater amount of flexibility than found in Suzuki since it enables an operator to set parameter values as desired. There is no such flexibility in Suzuki, where a simple calculation is made of a predetermined strength value against an assumed stress may be applied to a part.

On this basis, Applicants respectfully submit that Suzuki is significantly different from the present invention with respect to the stress and strength calculating units and steps..

Finally, the Examiner asserts that Suzuki issues reports which associate a comparison of the stress and strength values and provides an indication of whether a predetermined condition is attained, with reference to col. 26, line 60-col. 27, line 5. However, since Suzuki does not base its determination on calculated values of stress and strength, as already explained, Applicants submit that this feature is not found in Suzuki.

Summary of Differences

(a) The Suzuki's invention is a technique used for estimating a probability of defect, and the object and configuration thereof are essentially different from those of the present invention which determines whether a defect occurs or not.

In particular, "strength" in the Suzuki's invention is a quality standard (example of limit) indicating a limit line of "injury/soil" caused by "stress", and can be considered as a constant. The Suzuki's invention merely compares a certain kind of statistical value named "quality standard" with a statistical value named "injury/soil" actually caused by stress. That is, Suzuki merely compares statistical values.

By contrast, the present invention compares a physical value named "stress" with a physical value named "strength." Accordingly, the operating principle of the present invention is completely different from that of Suzuki.

(b) The Suzuki's invention stores a plurality of attributes, such as part attributes and operation attributes, together with their values, and estimates a probability of defect by referring

to the stored values and making a calculation using a formula. The calculation is made by referring to the parameter value of a product to be designed and using the formula.

However, what can be obtained by the Suzuki's invention as a result of the calculation is a correction coefficient or a probability of defect, whereas what can be obtained by the present invention are a stress value and a strength value related to a trouble of the product to be designed. These are entirely different factors, as would be understood by one skilled in the art.

(c) Suzuki does teach using a value named "strength" in Column 21 lines 24 to 29. However the value obtained by the Suzuki's invention is a "constant" predetermined for each type of part. That is, according to the Suzuki's invention, strength is not obtained by calculation.

Contrary to this, according to the present invention, the value of a parameter for design is determined by input of a value which can be arbitrarily selected by a user, and strength is calculated according to a predetermined "formula".

(d) According to Suzuki, only one strength is assigned to each type of part, as is apparent from the description "the coefficient values are stored for 'each type' of the part".

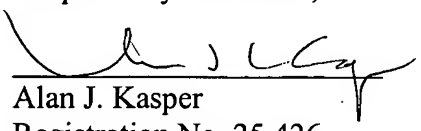
By contrast, the present invention considers combinations of plural types of parts and calculates a plurality of strengths corresponding to a variety of troubles for each combination of plural types of parts.

(e) The same observations as applied to "strength" in (c) and (d) above apply to "stress".

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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